

## TH-4 COMPUTER HARDWARE & MAINTENANCE

<b>Theory</b>	<b>4 Periods per week</b>	<b>Internal Assessment</b>	<b>20 Marks</b>
<b>Total Periods</b>	<b>60 Periods</b>	<b>End Sem Exam</b>	<b>80 Marks</b>
<b>Examination</b>	<b>3hours</b>	<b>Total Marks</b>	<b>100Marks</b>

### A. Topic wise distribution of periods

Sl No.	Topic	Periods
1	COMPUTER CENTRE MANAGEMENT	8
2	SITE PREPARATION & INSTALLATION	8
3	MOTHER BOARD and COMPONENTS	12
4	MEMORY AND I/O DEVICES	12
5	DISPLAY , POWER SUPPLY AND BIOS	5
6	MAINTENANCE AND TROUBLE SHOOTING	10
7	NETWORKING DEVICES AND THEIR INTERFACES	5
	TOTAL	60

### B. RATIONALE

This subject shall give exposure to the students on different principles to be followed in Computer Centre management. It will also give idea about the different components of Computers both Desktop and Laptops. It shall also give idea about the method of assembly, disassembling of computers and different trouble shooting techniques.

### C. OBJECTIVE

After undergoing the course, the students will be able to:

- Know about the manpower engaged in computer centre
- Know about the site preparation for computer centre furnishing
- Know about the details of Motherboard
- Know about the different components of computers
- Know about the working principles of different I/O devices
- Assemble the desktop computers
- Trouble shoot both Desktop and Laptop computers

### D. DETAIL CONTENTS:

1. **COMPUTER CENTRE MANAGEMENT**
  - 1.1 Need of Management in Computer Centre
  - 1.2 Types of Jobs carried out in computers in an organization
  - 1.3 Duties and responsibilities of personnel involved
  - 1.4 Need of Training of Staff
  - 1.5 Idea about Various makes of Computers.
2. **SITE PREPARATION & INSTALLATION**
  - 2.1 Layouts of computer centre
  - 2.2 False Roofing, Air Conditioning, Dust Proofing
  - 2.3 Power Conditioning equipments like CVT, UPS, Isolation Circuits with Principles of functioning

3. **MOTHER BOARD and COMPONENTS**
  - 3.1 Components and slots (Processor socket/slot, memory sockets, Chip sets, Cache, BIOS, Clock Generator, RTC, I/O Controller, power Connector, Key Board/Mouse Connectors, Jumpers, Pin Connectors etc)
  - 3.2 Mother architecture and Block Diagram
  - 3.3 Processors (Core2 Duo Processor, Quad Core Processor, Core i3,i5,i7 series, AMD A10 series, Xeon Processor)
  - 3.4 Chip Sets
  - 3.5 Bus Standards: PCI, AGP, USB etc.
  - 3.6 Colour Codes for Devices/ports
4. **MEMORY AND I/O DEVICES**
  - 4.1 Primary and secondary Memory
  - 4.2 Memory speed , Access time
  - 4.3 Hard Disk, Construction, Working Principles
  - 4.4 File System, Formatting, Partitioning
  - 4.5 Removable Storage and Special devices and their working principles(CD, DVD, External drives, Memory stick, USB flash drive, Solid state drive)
  - 4.6 Key Board(Interfacing, USB, Wireless, Types of keys, Keyboard Matrix, Key Bouncing)
  - 4.7 Mouse Interfacing
  - 4.8 Printers(Types, operation and Trouble shooting)
  - 4.9 Scanners(Types, operation and Trouble Shooting)
5. **DISPLAY , POWER SUPPLY AND BIOS**
  - 5.1 Displays and Graphics Cards
  - 5.2 LCD, PLASMA, TFT, LED Displays
  - 5.3 SMPS (Basic Principles and operations, O/P voltage)
  - 5.4 BIOS( Functions, setups, types of BIOS)
  - 5.5 POST(Operation, Faults related to Hardware)
6. **MAINTENANCE AND TROUBLE SHOOTING**
  - 6.1 Assembly of Components of Desktop Computers
  - 6.2 Configuring Laptops and Power settings
  - 6.3 Laptop Components(Adapter , Battery, Basic problems, RAM types, CPU types, Laptop Motherboard, block diagram, Laptop Keyboard)
  - 6.4 Formatting , Partitioning and installation of OS
  - 6.5 Trouble shooting of Common ly faced problems in Desktops and Laptops
  - 6.6 Basic Maintenance concepts(Preventive, Corrective, online)
  - 6.7 Diagnostic programs and tools
  - 6.8 Methods of Trouble shooting(symptom observation, analysis, diagnosis, Correction)
  - 6.9 Up gradation of system and application software
  - 6.10 Virus concepts, Antivirus
7. **NETWORKING DEVICES AND THEIR INTERFACES**
  - 7.1 Network Interface card
  - 7.2 Networking interconnecting devices such as hub, switch, Router
  - 7.3 Types of Network cable
  - 7.4 Types of Network connector

**Coverage of Syllabus up to Internal Exams (I.A.)  
Chapter 1,2,3,4**

**Books Recommended:-**

Sl.No	Name of Authors	Title of the Book	Name of the Publisher
01	Utpal Banarji,	Computer Management & Planning	TMH
02	B. Singh	PC Hardware	Firewall
03		PC Architecture Part I& II	Firewall
04	J Raventhal,	PC Repair and Maintenance,	Firewall
05	D.Balsubramanian	Computer Installation and servicing	TMH